VeeCAN™

VeeCAN™ Veethree Engine Monitor

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TABLE OF CONTENTS

1 ..... Introduction 5
1.1 ..... Getting Started 7
1.2 ..... Preferred Screen Store 8
1.3 ..... Inputs 9
1.4 ..... Software 9
2 ..... General Operation 10
2.1 ..... Keys 1 to 4 Operation 10
2.2 ..... Adjusting Lighting and Contrast 11
3 ..... Display Screens 12
3.1 ..... Quad Analog View (Screen 1) 12
Quad Digital View (Screen 2) 14
3.2 ..... Single Analog View (Screen 3) 15
4 ..... Alarm Functionality (Screen 4) 17
5 ..... Menu Screens 20
5.1 ..... Top level menu 20
5.2 ..... Settings Menu and Sub-menus 20
5.3 ..... System Menu and Sub-menus 21
5.4 ..... Data Base Viewer / Display Mapping 22
6 ..... I/O Settings 23
6.1 ..... Analog Inputs 24
6.2 ..... Digital Inputs 25

TABLE OF CONTENTS cont.

6.3..... Internal Voltage.....26
6.4..... Internal Engine Hours.....26
6.5..... Outputs.....27
6.6..... Alarms.....28
7..... J1939 PGNs Supported.....29
8..... Database List and PGNs..... 32
9..... Communicarions..... 37
10..... Accessories..... 38

1. INTRODUCTION

These pages provide operating instructions for the Veethree Engine Monitor which displays J1939-compatible engine/ transmission data. Please read through the guide before use.

The Veethree Engine Monitor (VEM) user-configurable application software creates graphical instrument clusters to display parameters and alarms - providing users with a timesaving solution for introducing equipment incorporating higher degrees of electronic display and control.

We hope that you will be pleased with this product and that you will have many years of trouble free operation. If you have any problems or ideas for improvement then we would like to hear from you.

For more information please see the web site: www.v3instruments.com or contact us at: sales@veethree.com

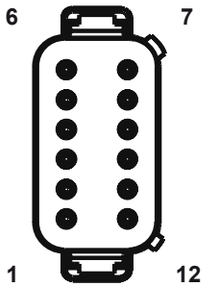
The VEM software runs on a VeeCAN™ display with five soft keys, providing a flexible and intuitive Human-Machine Interface (HMI). The 5 soft keys access a graphical menu structure that uses standard and easily-understood icons to indicate the key's current function. This enables the operator to select the required engine/transmission data and display it in the following formats:

- Analog gauges
- Digital values
- Current alarm messages

Additionally, various diagnostic screens are available, allowing detailed investigation of the engine and transmission data stream. The underlying structure of the VEM and its interaction with the soft keys are further explained in the following section. By accessing the Configuration menu, users can customize some of the displayed data to show, for example, metric or imperial units, and various parameters such as the full-scale reading of gauges.

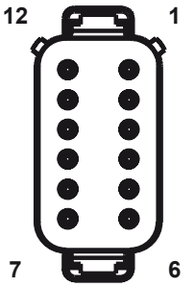
1.1 Getting Started

CONNECTOR PIN OUT



PRIMARY CONNECTOR		
1	GND	GROUND
2	PWR	POWER (10-30V DC). SUPPLY SHOULD BE PROTECTED BY 500mA - RATED CIRCUIT BREAKER/ FUSE
3	RLA1	RELAY/SOLENOID OUTPUT 1
4	RLA2	RELAY/SOLENOID OUTPUT 2
5	CAN2 (-)	ISOLATED CAN SUPPLY (-)
6	CAN2 (+)	ISOLATED CAN SUPPLY (+)
7	CAN2H	ISOLATED CAN DATA H
8	CAN2L	ISOLATED CAN DATA L
9	RLA3	RELAY/SOLENOID OUTPUT 3
10	RLA4	RELAY/SOLENOID OUTPUT 4
11	CAN1L	PRIMARY CAN DATA L
12	CAN1H	PRIMARY CAN DATA H

CONNECTOR PIN OUT



SECONDARY CONNECTOR		
1	AN1	SENSOR 1 ANALOG INPUT
2	AN2	SENSOR 2 ANALOG INPUT
3	AN3	SENSOR 3 ANALOG INPUT
4	AN4	SENSOR 4 ANALOG INPUT
5	AN5	SENSOR 5 ANALOG INPUT
6	AN6	SENSOR 6 ANALOG INPUT
7	AN7	SENSOR 7 ANALOG INPUT
8	DIG1	DIGITAL INPUT/FLOW SENSOR 1
9	DIG2	DIGITAL INPUT/FLOW SENSOR 2
10	TACH	TACHOMETER INPUT
11	RS232RX	RS232 RECEIVE
12	RS232TX	RS232 TRANSMIT

Once Power and Ground are connected the unit will power up automatically.

[Splash Screen]

1.2 Preferred Screen Store

The VEM automatically stores the current screen as the user's preferred page, after a delay of approximately 15 seconds (if no buttons are pushed). On the next power-up the display will start with the splash screen, and then go to the last stored screen. Note: Selecting Restore Defaults on the Systems sub-menu of Configuration will set screen 1 as the default display.

1.3 Inputs

Analog Inputs (x7) - Each input can be selected as 0-2.5V DC, 0-10V DC or 0-1K ohms.

Switch Inputs (x2) - Switch contact to ground or open collector type sensor. Max frequency 50 Hz.

Tachometer Input - Magnetic type or hall effect (and similar) with push-pull output. Max frequency 5 KHz.

Relay/Solenoid Outputs (x4) - Open collector output, suitable for 0.5A continuous load.

1.4 Software

The VeeCAN software can be updated or custom software can be installed using a USB flash drive. While the VeeCAN is powered up plug the flash drive containing the software into the USB port located on the back of the VeeCAN. Software will be installed automatically. Once the VeeCAN's backlight starts to flash, remove the flash drive from the USB port. The VeeCAN will restart and run with the new software.

2. GENERAL OPERATION

2.1 Keys 1 to 4 Operation

There are 4 main user screens accessed via the first four keys. The keys have icons to represent the screen view types, as follows.

Key 1 is a quad gauge view, Key 2 is a quad digital data view and key 3 is a single analog gauge view. Key 4 is used to access the alarm screen.

2.2 Adjusting Lighting and Contrast

Pressing Key 5 (the right-hand key) when the menu icons are not being displayed brings up the lighting menu. The LCD has a number of back-lighting levels that allow the display brightness and keypad brightness to be adjusted. The appropriate level is selected by pressing keys 1 or 2 to decrease or increase the illumination level of the LCD. The keypad brightness is adjusted in the same manner.

3. DISPLAY SCREENS

3.1 Quad Analog View (Screen 1)

This screen is a configurable quad analog gauge view. There is an option to have up to 4 quad analog views (so a total of 16 gauges can be selected). The number of quad views is adjustable between 1 and 4 (default). The data that can be chosen is also configurable (an option in the DBViewer screen).

Note. If a parameter is not available from the engine/transmission, it will not be possible to select it. If the parameter becomes unavailable while in view, '---' is displayed.

To adjust the contents of the quad screens - first press any of the first four keys to raise the button bar and than press key 5 to enable the cycling through of all the display parameters.

Data Available for Quad Screens (both analog and digital views)

db_0190_ENGINE_RPM,	db_0084_0517_NAV_WHEEL_BASED_ VEHICLE_SPEED,
db_0110_ENGINE_COOLANT_TEMP,	db_0168_0158_ELEC_BAT_POTENTIAL,
db_0167_ALTERNATOR_POTENTIAL,	db_0115_ALTERNATOR_CURRENT,
db_0114_NET_BATTERY_CURRENT,	db_0102_BOOST_PRESSURE,
db_0109_COOLANT_PRESSURE,	db_0094_FUEL_DELIVERY_PRESSURE,
db_0100_ENGINE_OIL_PRESSURE,	db_0247_TOTAL_ENGINE_HOURS,
db_0127_TRANS_OIL_PRESSURE,	db_0177_TRANS_OIL_TEMP,
db_0173_EXHAUST_GAS_TEMP,	db_0175_ENG_OIL_TEMP_1,
db_0105_INTAKE_MANIFOLD_1_TEMP,	db_0092_TORQUE_USE_AT_RPM,
db_0091_ACCELERATOR_POSITION,	db_0524_SELECTED_GEAR,
db_0523_CURRENT_GEAR,	db_0441_AUXILIARY_TEMP_1,
db_1387_AUXILIARY_PRESSURE_1,	db_0975_EST_PERCENT_FAN_SPEED,
db_0174_FUEL_TEMP,	db_0176_TURBO_OIL_TEMP,
db_0052_ENGINE_INTERCOOLER_TEMP,	db_0098_ENGINE_OIL_LEVEL,
db_0111_COOLANT_LEVEL,	db_0108_BARO_PRESSURE,
db_0172_AIR_INLET_TEMP,	db_0106_AIR_INLET_PRESSURE,
db_0107_AIR_FILTER_1_DIFF_PRESS,	db_0183_FUEL_RATE,
db_0513_ACTUAL_ENGINE_PERCENT_TORQUE,	db_1029_TRIP_AVERAGE_FUEL_RATE,
db_1036_TRIP_ENGINE_RUNNING_TIME	db_0096_FUEL_LEVEL

Quad Digital View (Screen 2)

This screen is a configurable quad analog gauge view. There is an option to have up to 4 quad analog views (so a total of 16 gauges can be selected). The number of quad views is adjustable between 1 and 4 (default). The data that can be chosen is also configurable (an option in the DBViewer screen).

Note. If a parameter is not aveilable from the engine/transmission, it will not be possible to select it. If the parameter becomes unavailable while in view, ' ---' is displayed.

To adjust the contents of the quad screens - first press any of the first four keys to raise the button bar and than press key 5 to enable the cycling through of all the display parameters.

3.2 Single Analog View (Screen 3)

This screen is a single analog gauge view. The data selected is also configurable (an option in the DBViewer screen).

Note. If a parameter is not available from the engine/ transmission, it will not be possible to select it.
If the parameter becomes unavailable while in view, ‘ - - -’ is displayed.

Data Available for Single Screen

db_0190_ENGINE_RPM,	db_0110_ENGINE_COOLANT_TEMP,
db_0100_ENGINE_OIL_PRESSURE,	db_0183_FUEL_RATE,
db_0102_BOOST_PRESSURE,	db_0168_0158_ELEC_BAT_POTENTIAL,
db_0167_ALTERNATOR_POTENTIAL,	db_0115_ALTERNATOR_CURRENT,
db_0114_NET_BATTERY_CURRENT,	db_0109_COOLANT_PRESSURE,
db_0094_FUEL_DELIVERY_PRESSURE,	db_0127_TRANS_OIL_PRESSURE,
db_0177_TRANS_OIL_TEMP,	db_0173_EXHAUST_GAS_TEMP,
db_0175_ENG_OIL_TEMP_1,	db_0105_INTAKE_MANIFOLD_1_TEMP

4. ALARM FUNCTIONALITY

(Screen 4)

The VEM supports active faults received from DM1 messages.

When an active/current alarm is received, a flashing pop-up window appears overlaid on the active screen, showing details of the current alarm. When an active alarm is received, the VEM activates its internal sounder.

The alarm list is accessed by pressing any key while an alarm pop-up is displayed, or by pressing any of the first 4 keys to show the button bar, and then key 4. This screen displays all current active alarms. Alarms not yet acknowledged are shown

Alarm Pop-up Screen

in black text on a red background. Alarms already acknowledged are shown in white text on black. If the engine hours data is available, the list indicates when the alarm was initiated.

When first entering the alarm screen, the list automatically displays the most recent alarm. The list can be scrolled using keys 1 and 2. This screen cannot be exited until all alarms have been acknowledged by pressing key 3. Alarm messages are automatically cleared from the list when no longer received by the VEM.

TOTAL ALARMS = 10
Src DESCRIPTION FAIL MODE
10. ENG OIL PRESSURE
0x00 ENG HRS = 253 TOO LOW MS
SPN = 100 FMI = 1
OCC CNT = 8
9. AIR INLET PRESS.
0x00 ENG HRS = 253
SPN = 106 FMI = 29
OCC CNT = 10
8. INTAKE MANIFOLD TEMP.
0x00 ENG HRS = 253 UNKNOWN
SPN = 105 FMI = 11
OCC CNT = 9
VeeCAN™ 320

Alarm Screen Before Alarm Acknowledge.

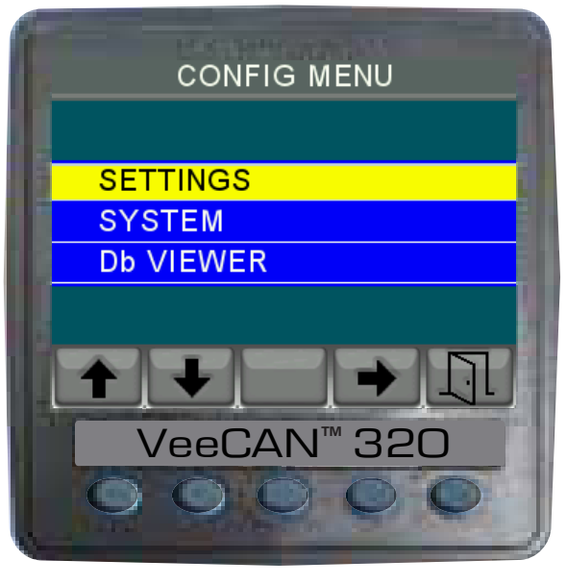
ENGINE SERVICE WARNING. In the Configuration menu, users can set the engine service interval in hours. When the VEM determines an engine service is due, it will display SERVICE REQUIRED on the splash screen that appears at power-up.

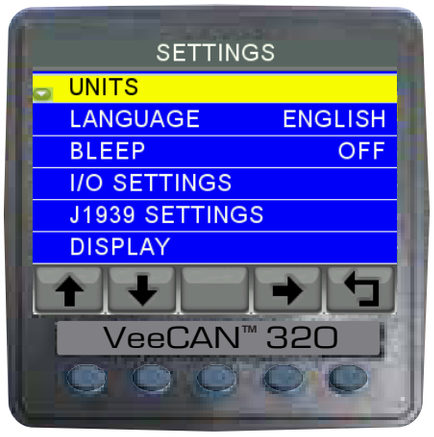
DATA COMMUNICATIONS FAILURE. If the VEM cannot detect engine/transmission data broadcasts, a pop-up window with a data communications failure warning icon will appear and flash. Once engine/transmission data is detected the warning disappears and normal data display resumes.

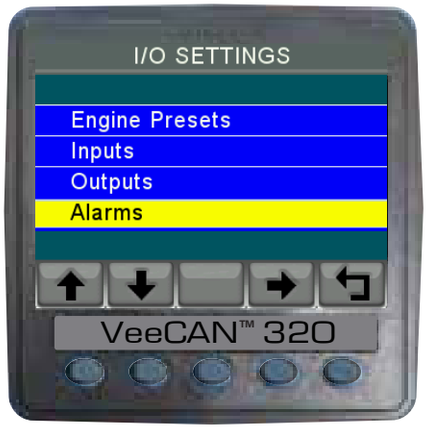
Typical Alarm Screen after Alarm Acknowledge

5. MENU SCREENS

5.1 Top Level Menu

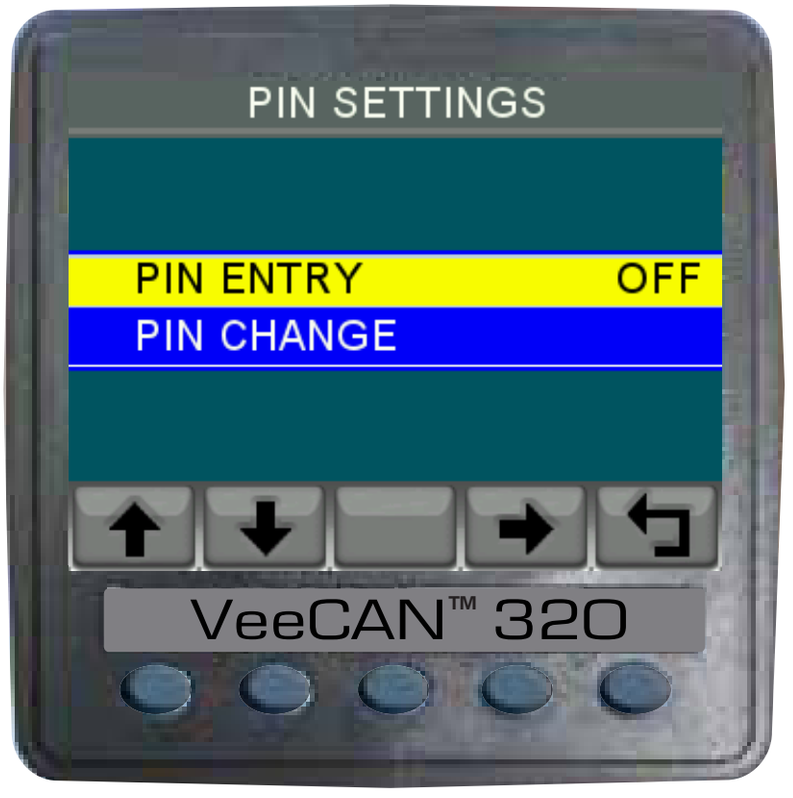






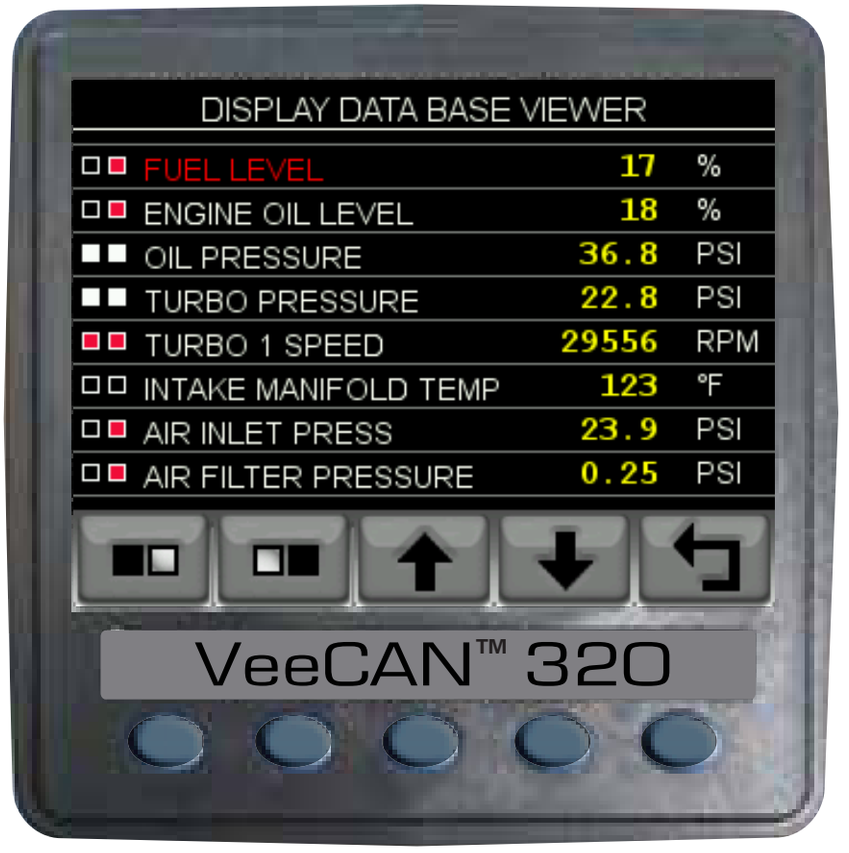
5.2 Settings Menu and Sub-menus

5.3 System Menu and Sub-menus



5.4 Data Base Viewer / Display Mapping

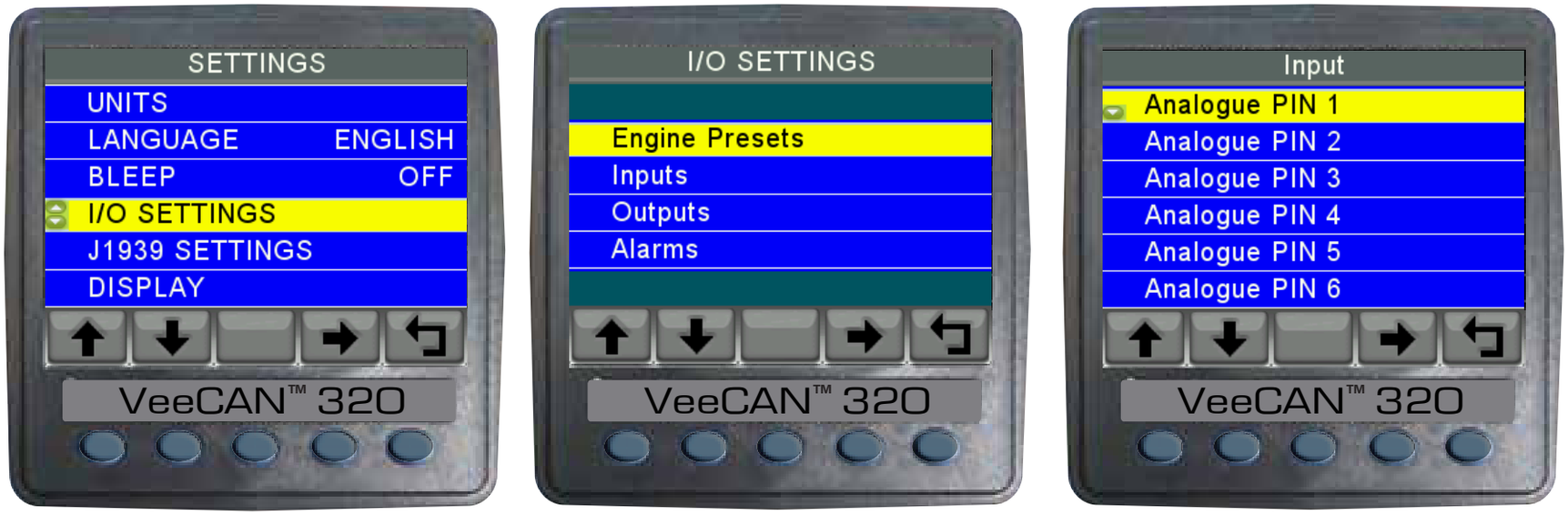
DISPLAY DATA BASE VIEWER
FUEL LEVEL 25 %
ENGINE OIL LEVEL 28 %
OIL PRESSURE 39.2 PSI
TURBO PRESSURE 24.0 PSI
TURBO 1 SPEED 65540 RPM
INTAKE MANIFOLD TEMP 136 °F
AIR INLET PRESS 24.7 PSI
AIR FILTER PRESSURE 0.37 PSI
VeeCAN™ 320


DISPLAY DATA BASE VIEWER
FUEL LEVEL 17 %
ENGINE OIL LEVEL 18 %
OIL PRESSURE 36.8 PSI
TURBO PRESSURE 22.8 PSI
TURBO 1 SPEED 29556 RPM
INTAKE MANIFOLD TEMP 123 °F
AIR INLET PRESS 23.9 PSI
AIR FILTER PRESSURE 0.25 PSI
VeeCAN™ 320

LEFT: This screen can be adapted to allow the data mapping / filter for each of the three data views. The operator can check boxes for each item they want to appear on each of the standard views (Quad and Single). Key 1 and Key 2 are page up/down respectively. Key 3 moves down the list one item and Key 4 is to edit the settings of the view filters. The red box indicates that the option is not available.

RIGHT: This shows the screen in "edit" mode where the highlighted item (in RED) can be chosen to be viewed in the quad or the single view or in both or in neither.

6. I/O SETTINGS

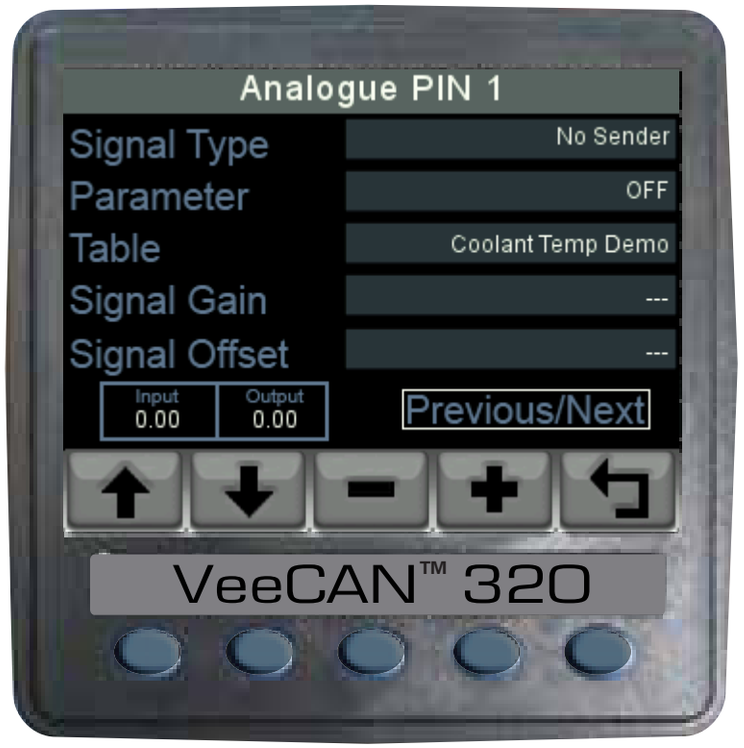


LEFT: Access this screen through the settings in the Configuration Menu.

CENTER: This screen is used to access inputs, outputs, alarms and engine presets. Engine presets option is used to reset the unit to factory settings.

RIGHT: This screen allows for function selection for analog inputs, digital inputs, voltage and internal engine hours. Pressing Key 4 will access the selected pin. Please see section 1.1 pin location.

6.1 Analog Inputs

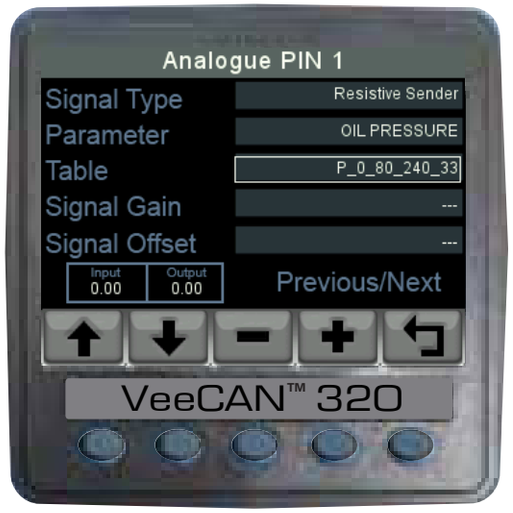


This screen is designed for configuration of analogue pins. Use Key 1 and Key 2 to navigate up/down. Use Key 3 and Key 4 for back/forward.

Signal Type - Select type of signal the sender is sending. Most analogue senders are resistance senders.

Parameter - Used to select the function of the sender.

Table - Select the resistance table of the sender used.



Example: This is an example of a 0-80 PSI oil pressure sender using the 240-33 ohm resistance range. The prefix:

L - Level

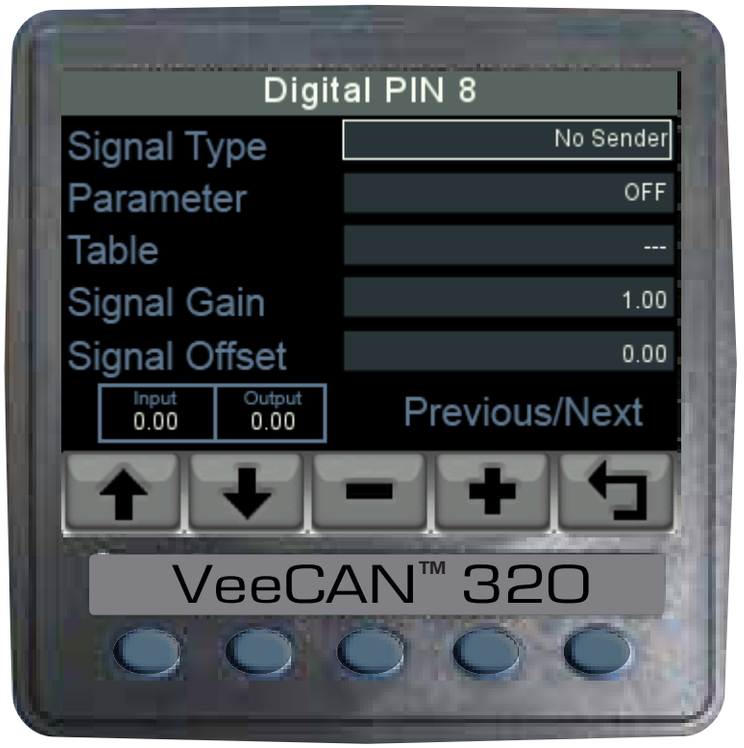
P - Pressure

TF - Temperature (F)

TC - Temperature (C)

NOTE: The input and output windows will show readings when sender is connected.

5.2 Digital Inputs (8-10)



This screen is designed for configuration of digital input signals.
NOTE: Only pin 10 can be used as a tachometer signal.

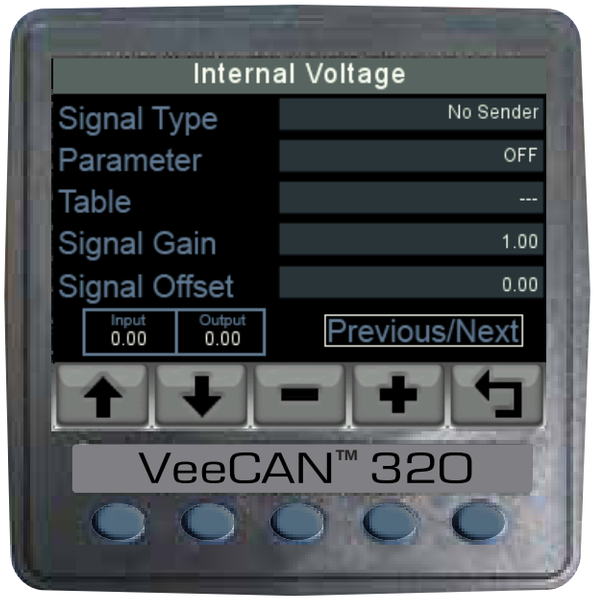
Signal Type - Select from a digital count, frequency, period or level.

Parameter - Used to select the function.

Table - Not selectable.

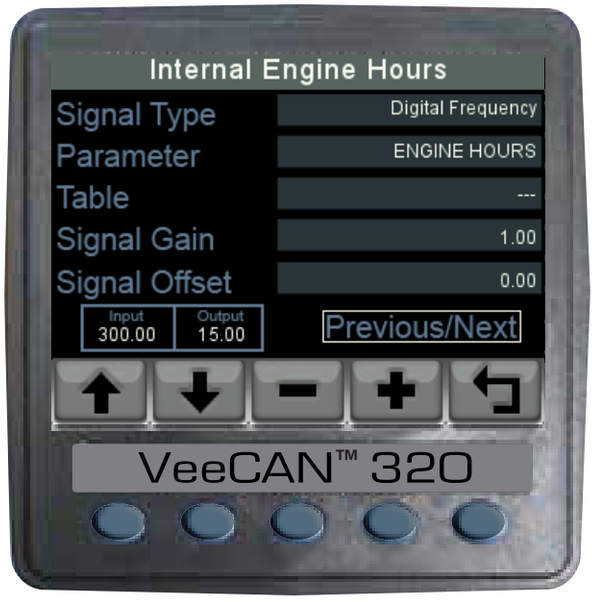
Signal Gain and Signal Offset - used to adjust accuracy of the readings.

6.3 Internal Voltage



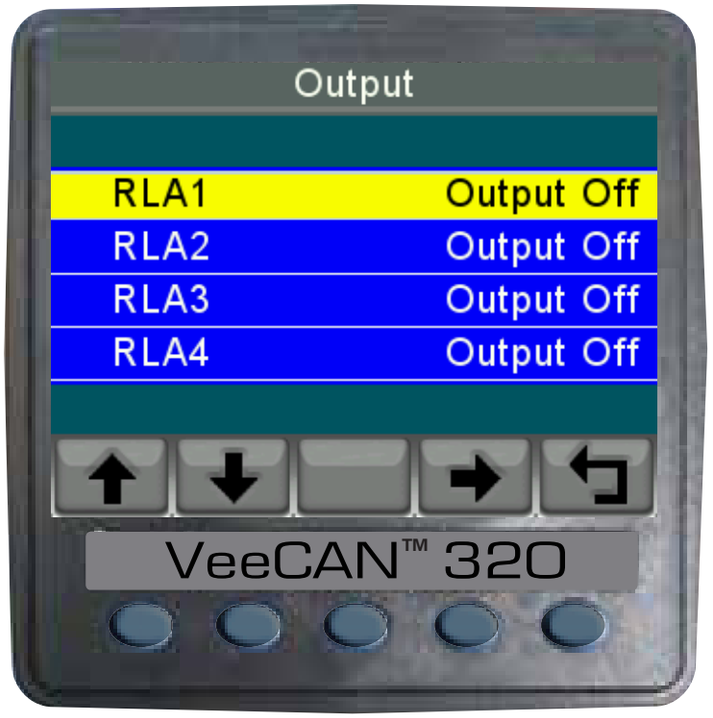
There is no pin for voltage, the voltage reading is extracted from the supply voltage of the VeeCAN unit.

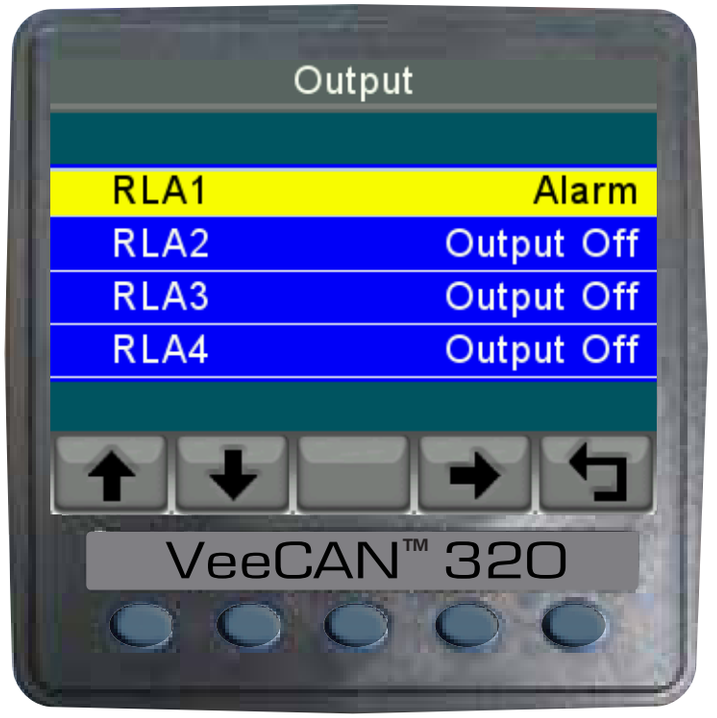
6.4 Internal Engine Hours



This screen is used to set up the internal engine hour meter.

6.5 Outputs





LEFT: This screen is used to turn ON and OFF relay alarms, if wired into the associated pins of the VeeCAN unit. These are open connector outputs, suitable for 0.5A continuous loads.

RIGHT: Use KEY 1 and KEY 2 to navigation up/down, use KEY 4 to select between “Alarm” and “Output Off”.

6.6 Alarms

LEFT: This screen is used to access all alarms. That can be set for the analog pins, digital pins, internal voltage and internal engine hours.

RIGHT: All inputs can have a LOW and HIGH alarm function. Use threshold function to set the alarm values.

7. J1939 PGNs SUPPORTED

// PGN 56832 (0xDE00) (R) Reset

// PGN 61442 (0xF002) Electronic Transmission Controler 1

// PGN 61443 (0xF003) Electronic Engine Controller 2

// PGN 61444 (0xF004) Electronic Engine Controller 1

// PGN 61445 (0xF005) Electronic Transmission Controller 2

// PGN 61448 (0xF008) Hydraulic Pressure Governor Info

// PGN 64891 (0xFD7B) (R) Aftertreatment 1 Service

// PGN 64892 (0xFD7C) (R) Particulate Trap Control 1

// PGN 64947 (0xFDB3) Aftertreatment 1 Outlet Gas 2

// PGN 64948 (0xFDB4) Aftertreatment 1 Intake Gas 2

// PGN 65110 (0xFE56) Tank Information 1

// PGN 65164 (0xFE8C) (R) Auxiliary Analog Information

// PGN 65169 (0xFE91) Fuel Leakage

// PGN 65178 (0xFE9A) Turbocharger Information 2

// PGN 65187 (0xFEA3) Exhaust Port Temperature 1

// PGN 65188 (0xFEA4) Engine Temperature 2

// PGN 65198 (0xFEAE) Air Supply Pressure

// PGN 65200 (0xFEB0) Trip Time Information 2

// PGN 65201 (0xFEB1) ECU History

// PGN 65203 (0xFEB3) Fuel Information (Liquid)

// PGN 65213 (0xFEBD) Fan Drive

// PGN 65243 (0xFEDB) Engine Fluid Level/Pressure 2

// PGN 65245 (0xFEDD) Turbocharger

// PGN 65246 (0xFEDE) Air Start Pressure

// PGN 65247 (0xFEDF) Electronic Engine Controller 3

// PGN 65248 (0xFEE0) Vehicle Distance

// PGN 65252 (0xFEE4) (R) Shutdown

// PGN 65253 (0xFEE5) Engine Hours, Revolutions

// PGN 65255 (0xFEE7) Vehicle Hours

// PGN 65257 (0xFEE9) Fuel Consumption (Liquid)

// PGN 65262 (0xFEEE) Engine Temperature 1

// PGN 65263 (0xFEEF) Engine Fluid Level/Pressure 1

// PGN 65265 (0xFEF1) (R) Cruise Control/Vehicle Speed

// PGN 65266 (0xFEF2) (R) Fuel Economy (Liquid)

// PGN 65269 (0xFEF5) Ambient Conditions

// PGN 65270 (0xFEF6) (R) Inlet/Exhaust Conditions 1

// PGN 65271 (0xFEF7) (R) Vehicle Electrical Power 1

// PGN 65272 (0xFEF8) Transmission Fluids 1

// PGN 65276 (0xFEFC) Dash Display

8. DATABASE LIST AND PGNs

DATABASE NAME	Description	J1939 PGN
db_46_PNEUMATIC_SUPPLY_PRESSURE	Pneumatic Supply Pressure	FEAE
db_0051_THROTTLE_POSITION	Throttle Position	FEF2
db_0052_ENGINE_INTERCOOLER_TEMP	Engine Intercooler Temperature	FEEE
db_0082_AIR_START_PRESSURE	Air Start Pressure	FEDE
db_0084_0517_NAV_WHEEL_BASED_VEHICL E_SPEED	Vehicle Speed	FEF1
db_0091_ACCELERATOR_POSITION	Acceleration Position	F003
db_0092_TORQUE_USE_AT_RPM	Torque at RPM	F003
db_0094_FUEL_DELIVERY_PRESSURE	Fuel Delivery Pressure	FEEF
db_0096_FUEL_LEVEL	Fuel Level	FEFC
db_0098_ENGINE_OIL_LEVEL	Engine Oil Level	FEEF
db_0100_ENGINE_OIL_PRESSURE	Oil Pressure	FEEF
db_0102_BOOST_PRESSURE	Turbo Pressure	FEF6
db_0103_TURBO_1_SPEED	Turbo 1 Speed	FEDD
db_0105_INTAKE_MANIFOLD_1_TEMP	Intake Manifold Temperature	FEF6
db_0106_AIR_INLET_PRESSURE	Air Inlet Pressure	FEF6
db_0107_AIR_FILTER_1_DIFF_PRESS	Air Filter Pressure	FEF6
db_0108_BARO_PRESSURE	Baro Pressure	FEF5
db_0109_COOLANT_PRESSURE	Ext Coolant Pressure	FEEF

CONTINUES ON NEXT PAGE

DATABASE NAME	Description	J1939 PGN
db_0110_ENGINE_COOLANT_TEMP	Coolant Temp	FEEE
db_0111_COOLANT_LEVEL	Coolant Level	FEEF
db_0114_NET_BATTERY_CURRENT	Battery Current	FEF7
db_0115_ALTERNATOR_CURRENT	Alternator Current	FEF7
db_0123_CLUTCH_PRESSURE	Clutch Pressure	FEE8
db_0127_TRANS_OIL_PRESSURE	Trans Oil Pressure	FEF8
db_0157_INJ_METERING_RAIL_1_PRESSURE	Inj Met Rail 1 Pressure	FEDB
db_0161_INPUT_SHAFT_SPEED	Input Shaft Speed	F002
db_0164_INJECTION_CONTROL_PRESSURE	Injection Control Pressure	FEDB
db_0167_ALTERNATOR_POTENTIAL,	Alternator Voltage	FEF7
db_0168_0158_ELEC_BAT_POTENTIAL	Voltage	FEF7
db_0172_AIR_INLET_TEMP	Air Inlet Temperature	FEF5
db_0173_EXHAUST_GAS_TEMP	Exhaust Temperature	FEF6
db_0174_FUEL_TEMP	Fuel Temperature	FEEE
db_0175_ENG_OIL_TEMP_1	Engine Oil Temperature	FEEE
db_0176_TURBO_OIL_TEMP	Turbo Oil Temperature	FEEE
db_0177_TRANS_OIL_TEMP	Trans Oil Temperature	FEF8
db_0182_TRIP_FUEL	Trip Fuel	FEE9
db_0183_FUEL_RATE	Fuel Rate	FEF2

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DATABASE NAME	Description	J1939 PGN
db_0184_INSTANT_FUEL_ECON	Instant Fuel Economy	FEF2
db_0185_AVG_FUEL_ECON	Trip Fuel Economy	FEF2
db_0190_ENGINE_RPM	Engine RPM	F004
db_0191_OUTPUT_SHAFT_SPEED	Output Shaft Speed	F002
db_0244_TRIP_DISTANCE	Trip Distance	FEE0
db_0245_TOTAL_VEHICLE_DISTANCE	Total Distance	FEE0
db_246_TOTAL_VEHICLE_HOURS	Total Vehicle Hours	FEE7
db_0247_TOTAL_ENGINE_HOURS	Engine Hours	FEE5
db_0250_TOTAL_FUEL_USED	Total Fuel	FEE9
db_0441_AUXILIARY_TEMP_1	Auxiliary Temp 1	FE8C
db_0512_DRIVERS_DEMAND_PERCENT_TORQUE	Requested Torque	F004
db_0513_ACTUAL_ENGINE_PERCENT_TORQUE	Actual Torque	F004
db_0515_ENGINES_DESIRED_OPERATING_SPEED	Eng Desired Operating Speed	FEDF
db_0523_CURRENT_GEAR	Current Gear	F005
db_0524_SELECTED_GEAR	Selected Gear	F005
db_0573_TORQUE_CONVERTER_LOCKUP_ENGAGED	Torque Lockup Engaged	F002

DATABASE NAME	Description	J1939 PGN
db_0975_EST_PERCENT_FAN_SPEED	Fan Speed	FEBD
db_0988_TRIP_GROUP_1	Trip Group 1	DE00
db_1029_TRIP_AVERAGE_FUEL_RATE	Trip Avg Fuel Rate	FEB3
db_1032_TOTAL_ECU_DISTANCE	Total ECU Distance	FEB1
db_1036_TRIP_ENGINE_RUNNING_TIME	Trip Eng Run Time	FEB0
db_WTS_STATUS_SPN1081	WTS Status	FEE4
db_1136_ENGINE_ECU_TEMP	Engine ECU Temp	FEA4
db_1137_EXHAUST_GAS_PORT_1_TEMP	Exhaust Gas Port 1 Temp	FEA3
db_1138_EXHAUST_GAS_PORT_2_TEMP	Exhaust Gas Port 2 Temp	FEA3
db_1172_TURBO_1_COMPRESSOR_INLET_TEMP	Turbo Comp Inlet Temperature	FE9A
db_1239_FUEL_LEAKAGE_1	Fuel Leakage 1	FE91
db_1240_FUEL_LEAKAGE_2	Fuel Leakage 2	FE91
db_1349_INJ_METERING_RAIL_2_PRESSURE	Inj Met Rail 2 Pressure	FEDB
db_1387_AUXILIARY_PRESSURE_1	Auxiliary Pressure 1	FE8C
db_1761_CATALYST_TANK_LEVEL	Catalyst Tank Level	FE56
db_1762_HYDRAULIC_PRESSURE	Hydraulic Pressure	F008
db_3031_CATALYST_TANK_TEMPERATURE	Catalyst Tank Temperature	FE56
db_3241_AFTERTREATMENT_1_EXAUGHTS_GAS_TEMP_1	After Treatment 1 Exaughts Gas Temp 1	FDB4

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DATABASE NAME	Description	J1939 PGN
db_3245_AFTERTREATMENT_1_EXAUGHTS_GAS_TEMP_3	After Treatment 1 Exaughts Gas Temp 3	FDB3
db_DPF_LAMPCOMMAND_SPN3697	DPF Lamp Command	FD7C
db_ESHT_LAMPCOMMAND_SPN3698	ESHT Lamp Command	FD7C
db_DPF_ACTIVEREGENSTATUS_SPN3700	DPF Active Regen Status	FD7C
db_DPF_STATUS_SPN3701	DPF Status	FD7C
db_3703_PART_TRAP_ACTIVE_REGEN_INHI_DUE_SWITCH	Particul Trap Active Regen Inhibit Due to Switch	FD7C
db_DPF_ACTIVEREGENINHIBITEDSWITCH_SPN3703	DPF Active Regen Inhibited Switch	FD7C
db_3719_PARTICULATE_FILTER_1_SOOT_LOAD	Particulate Filter 1 Soot Load %	FD7B
db_3720_PARTICULATE_FILTER_1_ASH_LOAD	Particulate Filter 1 Ash Load %	FD7B
db_SERVICE_HOURS	Service Hours	-
db_CANTX_DISABLE	CANTX Disable	-
db_DOMESTIC_BAT	Domestic Battery	-
db_DEF_LEVEL	DEF Level	-
db_DPF_LEVEL	DPF Level	-

8. COMMUNICATIONS

The product supports J1939 and NMEA 0183 receive only. NMEA 0183 should be used to acquire speed data from a GPS sensor.

9. ACCESSORIES

* CAN + POWER Cable
* FLUSH MOUNT KIT
* USER MANUAL
* PROTECTIVE COVER

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VeeCAN™ 320 Veethree Engine Monitor